



# Armed Forces College of Medicine

## AFCM



Pleura

# **Arterial Anastomosis of Upper Limb**

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**Ass. Prof of Anatomy**

# INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

1. Discuss the arteries sharing in anastomosis around scapula, humerus, elbow & wrist
2. Predict the clinical significance of anastomosis of upper limb.

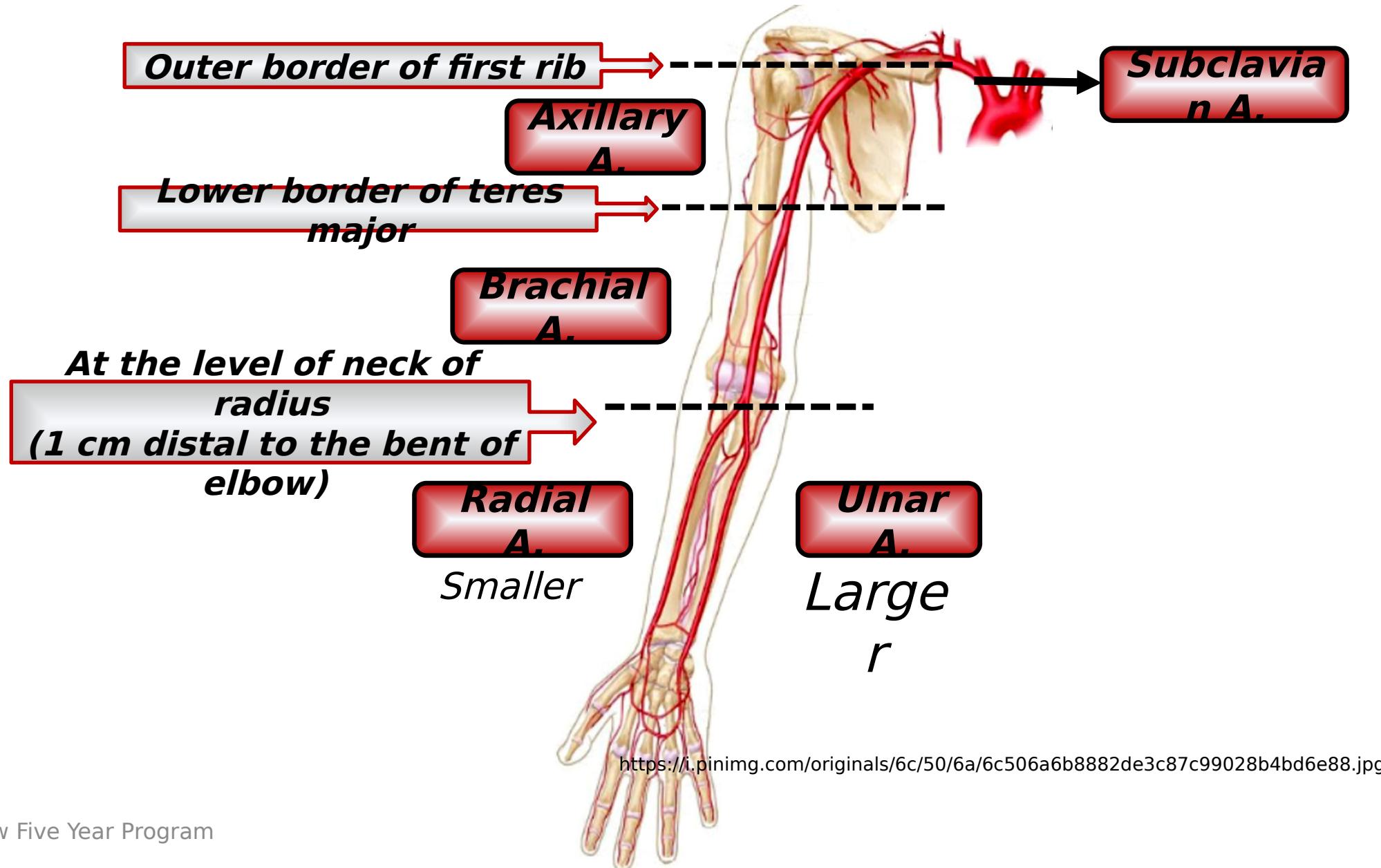
## Key points



- 1. Arterial anastomosis around scapula & humerus and their clinical significance**
  
- 2. Arterial anastomosis around elbow & wrist and their clinical significance**



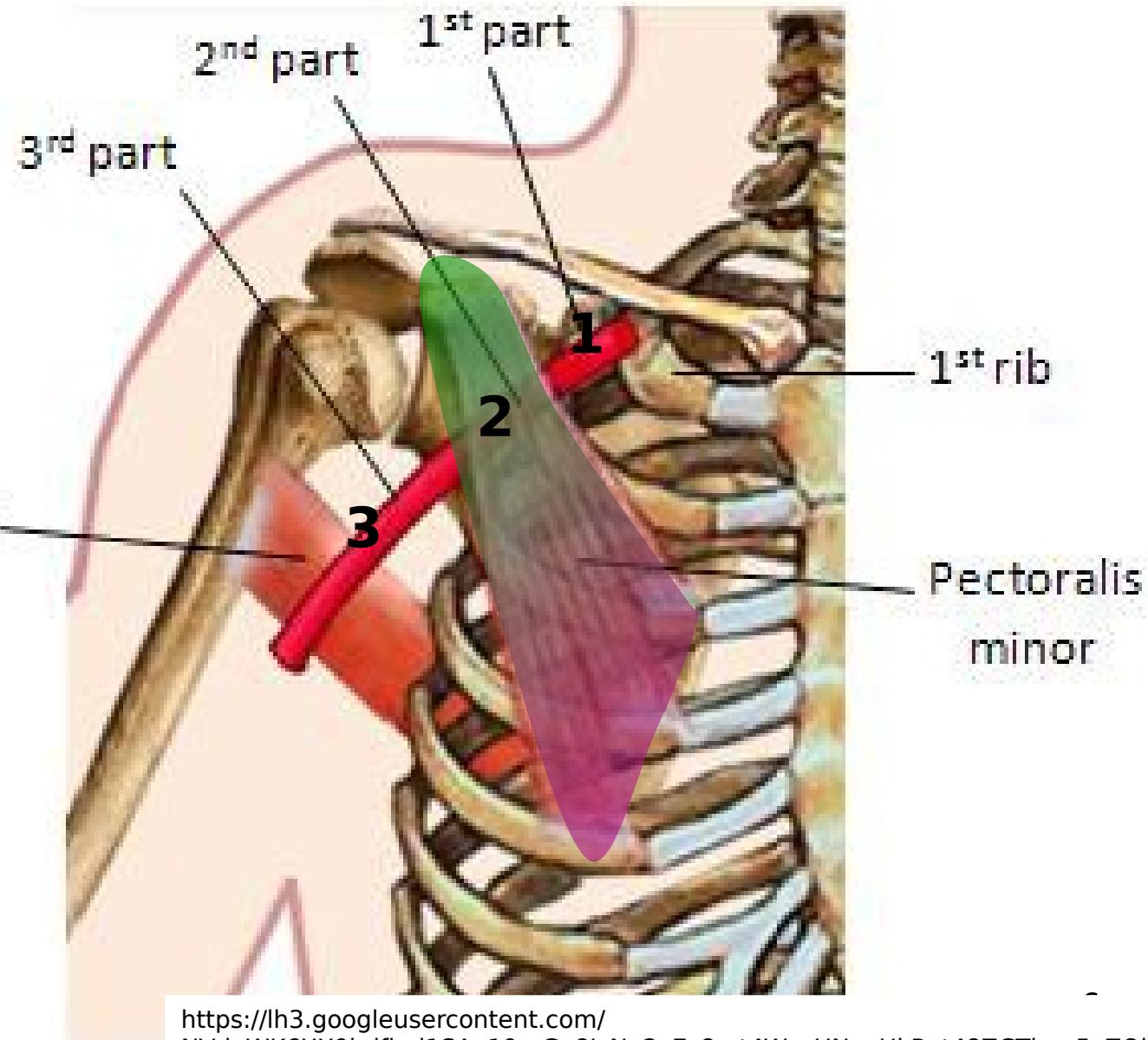
# Arteries of upper limb



# Axillary artery



- **Begins at the outer border of the first rib as continuation of the subclavian artery.**
- **Ends at lower border of the teres major as brachial artery.**



# Branches of axillary artery

**1. Superior thoracic**

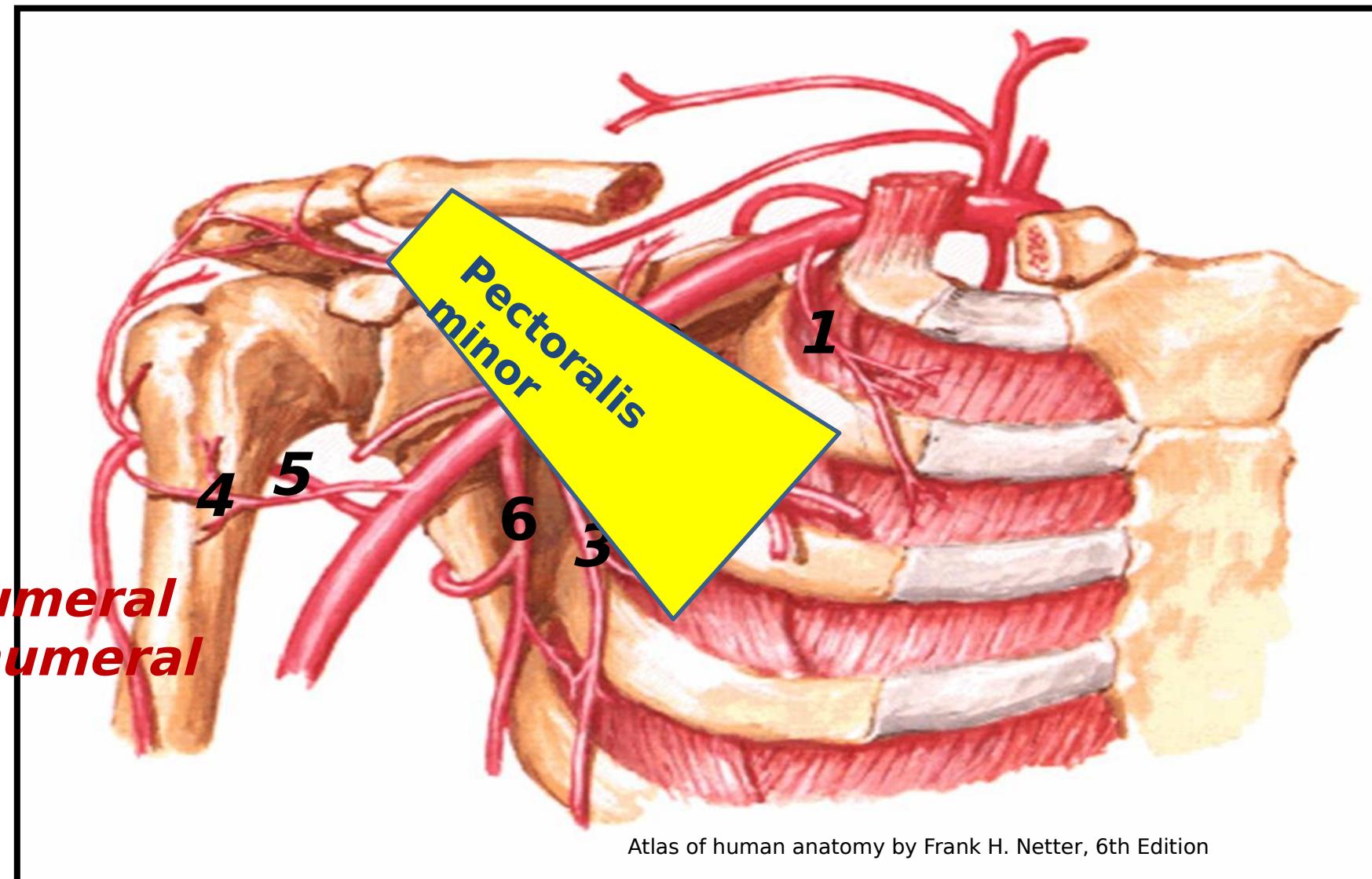
**2. Acromiothoracic**

**3. Lateral thoracic**

**4. Ant. circumflex humeral**

**5. Post. circumflex humeral**

**6. Subscapular**



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# Anastomosis around scapula



- **Site:**

***Deep to infraspinatus***

- **Formation:**

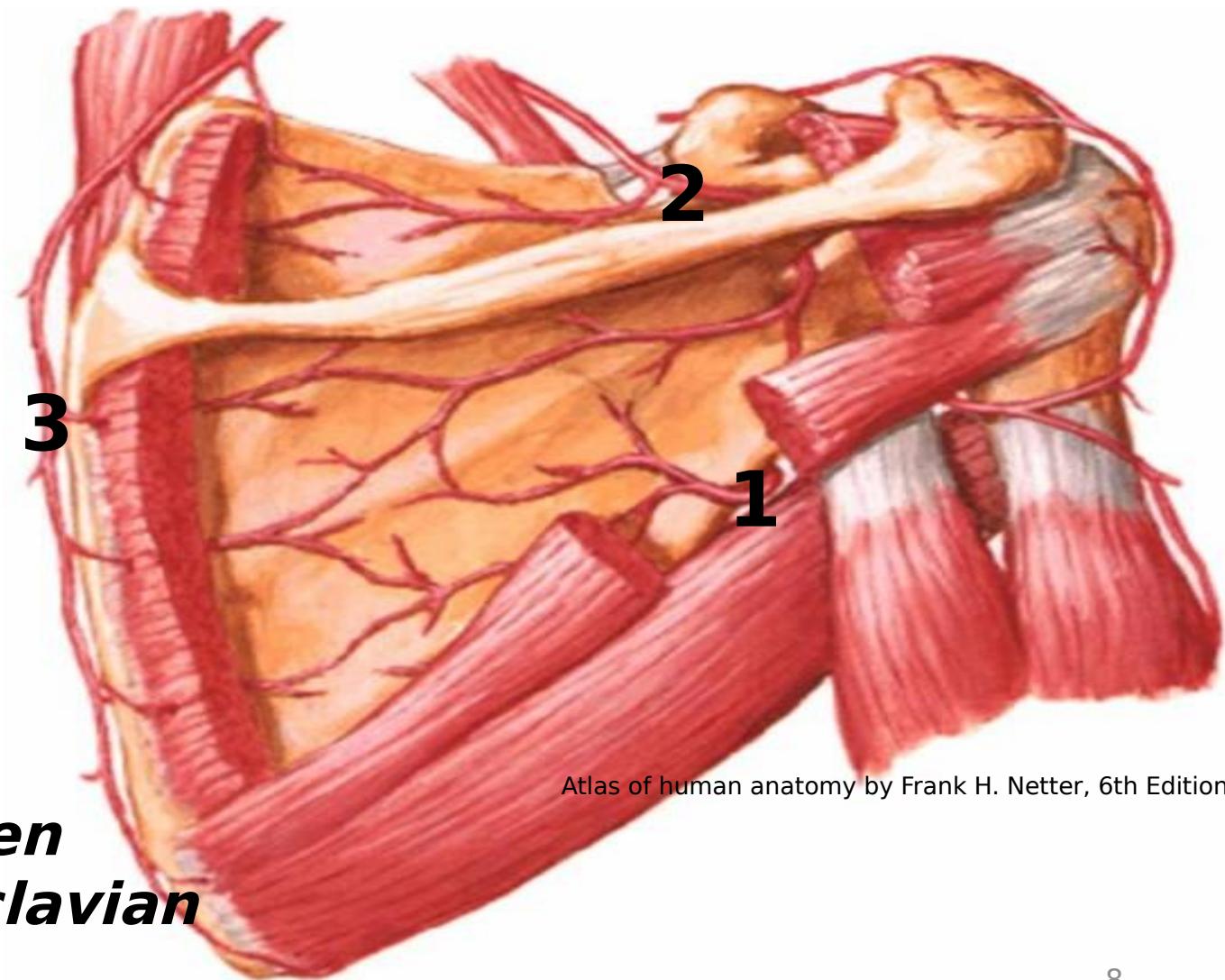
**1. Subscapular & circumflex scapular.**

(3<sup>rd</sup> part axillary, 1<sup>st</sup> part subclavian)

**2. Suprascapular** (1<sup>st</sup> part subclavian)

**Clinical importance:**

**Carry blood to upper limb when there is an occlusion bet subclavian & axillary arteries**



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- **Site:**

***Around surgical neck***

- **Formation:**

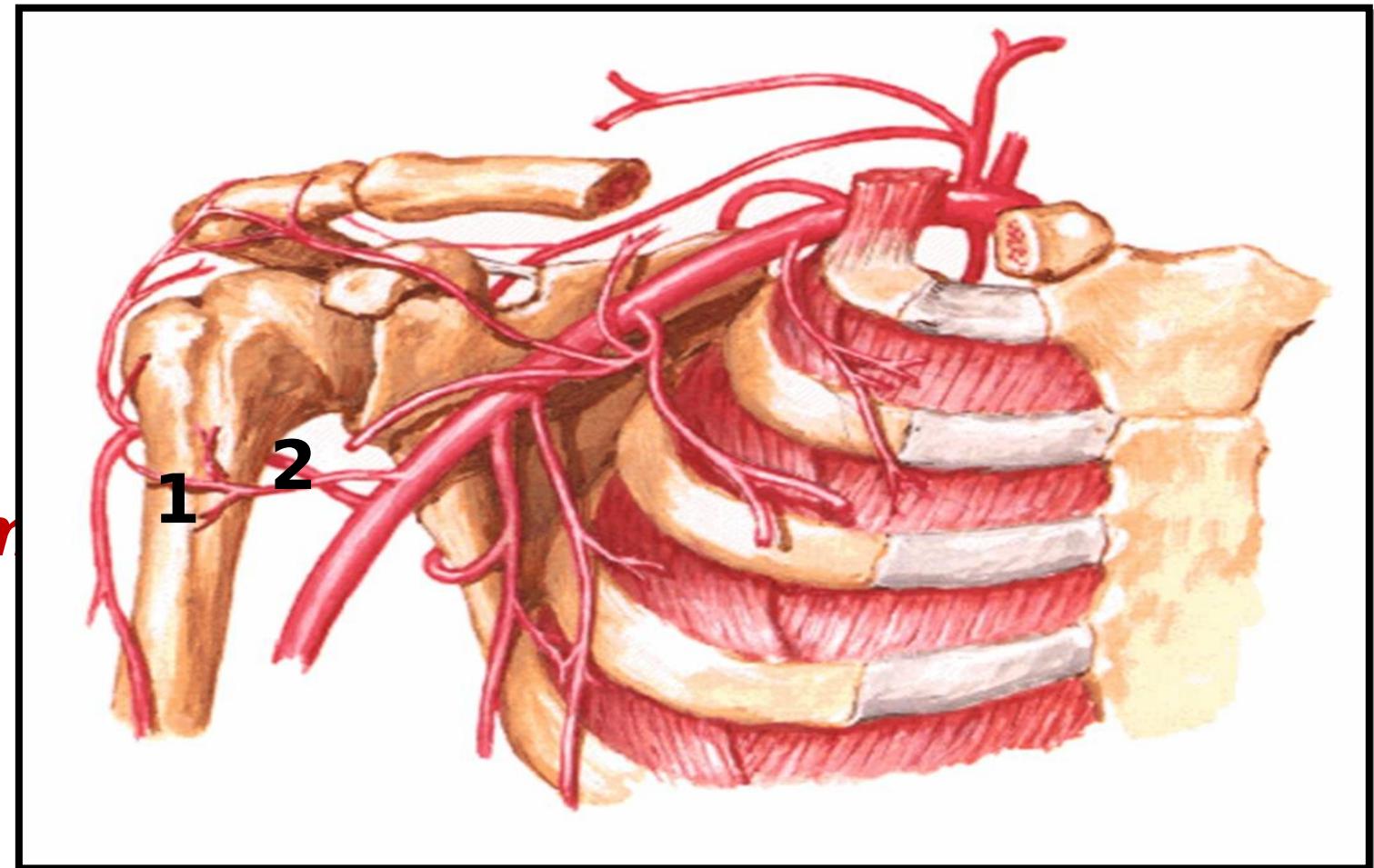
**1. *Ant circumflex hum***

**2. *Post circumflex humeral.***

- **Injury:**

***Fracture surgical neck of humerus***

New Five Year Program



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Muscloskeletal Module

# Lecture Quiz



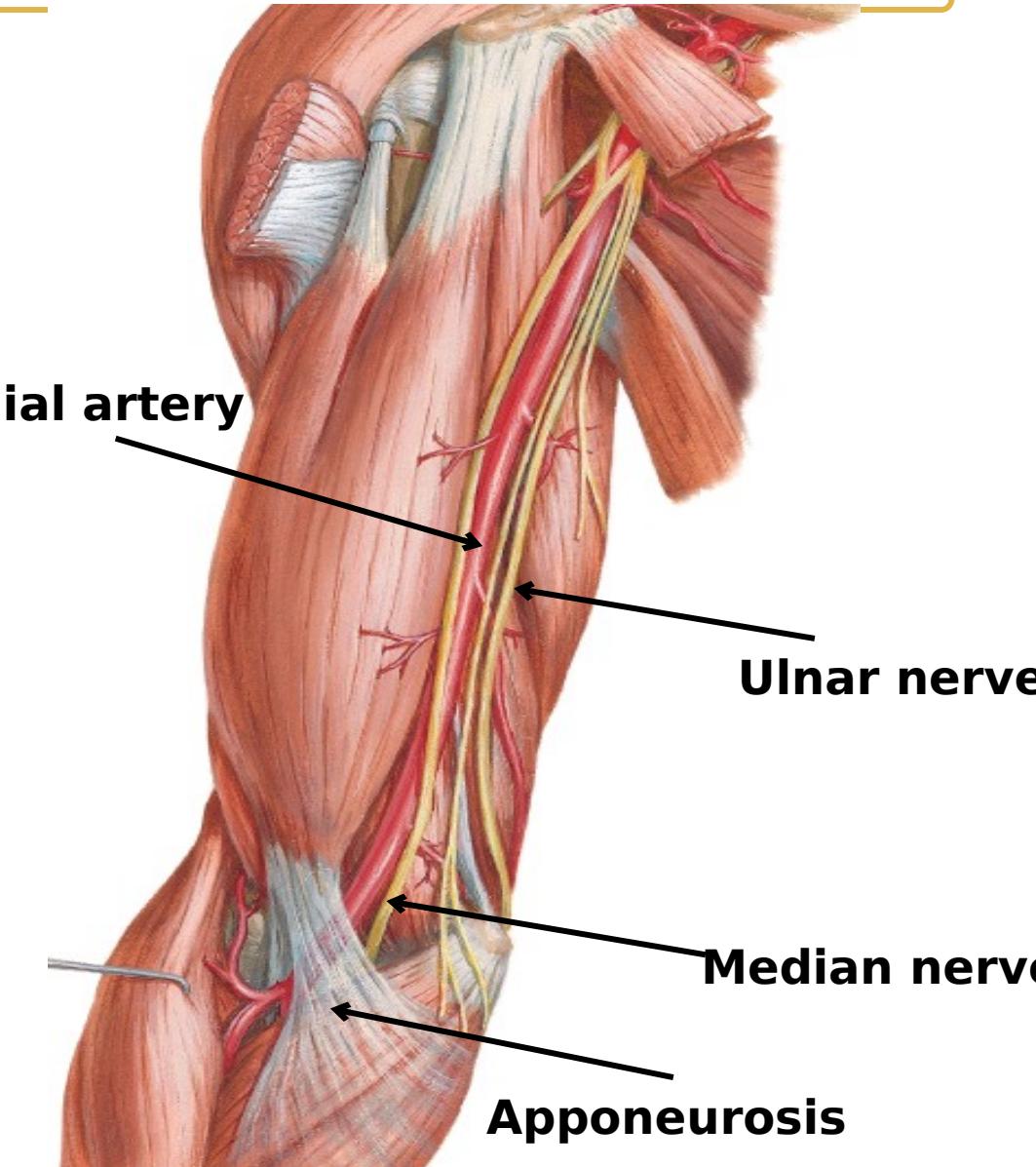
All of the following arteries share in the anastomosis around the scapula except:

- a) Suprascapular artery
- b) Thoracoacromial artery
- c) Subscapular artery
- d) Circumflex scapular artery

# Brachial artery



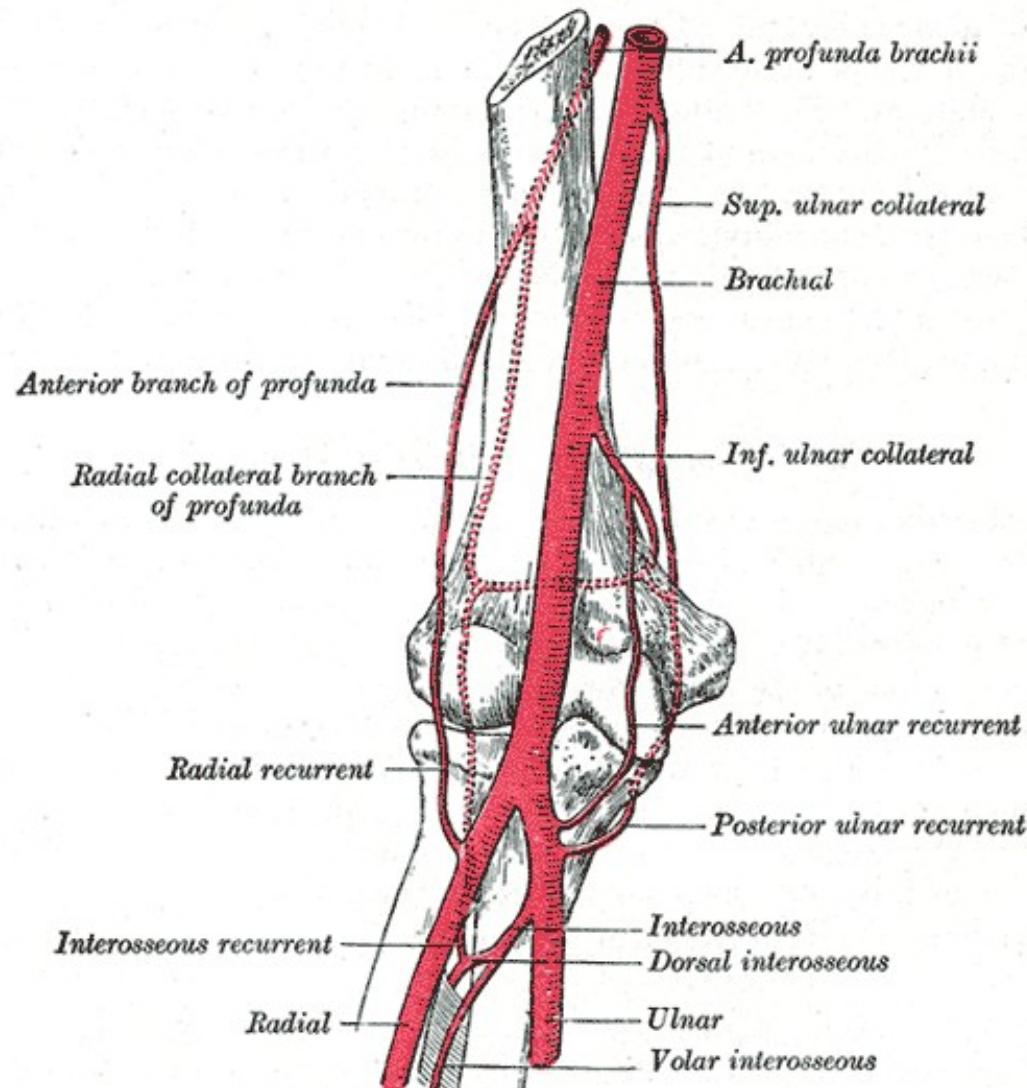
- **Begins as** continuation of axillary at lower border of **teres major**
- **Ends at** level of **neck of radius** by dividing into **radial & ulnar arteries**
- At elbow it is covered by **bicipital aponeurosis** which separates it from **median cubital vein**



# Branches of brachial artery



- 1. Muscular**
- 2. Nutrient**
- 3. Sup ulnar**
- 4. Anterior collateral**
- 5. Profunda brachii**



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Musculoskeletal Module

# Profunda brachii



- Arise from posteromedial side of brachial
- Runs with **radial nerve** between long & medial heads of triceps to reaches **spiral groove**

## **Branches :**

1- **Muscular** to triceps

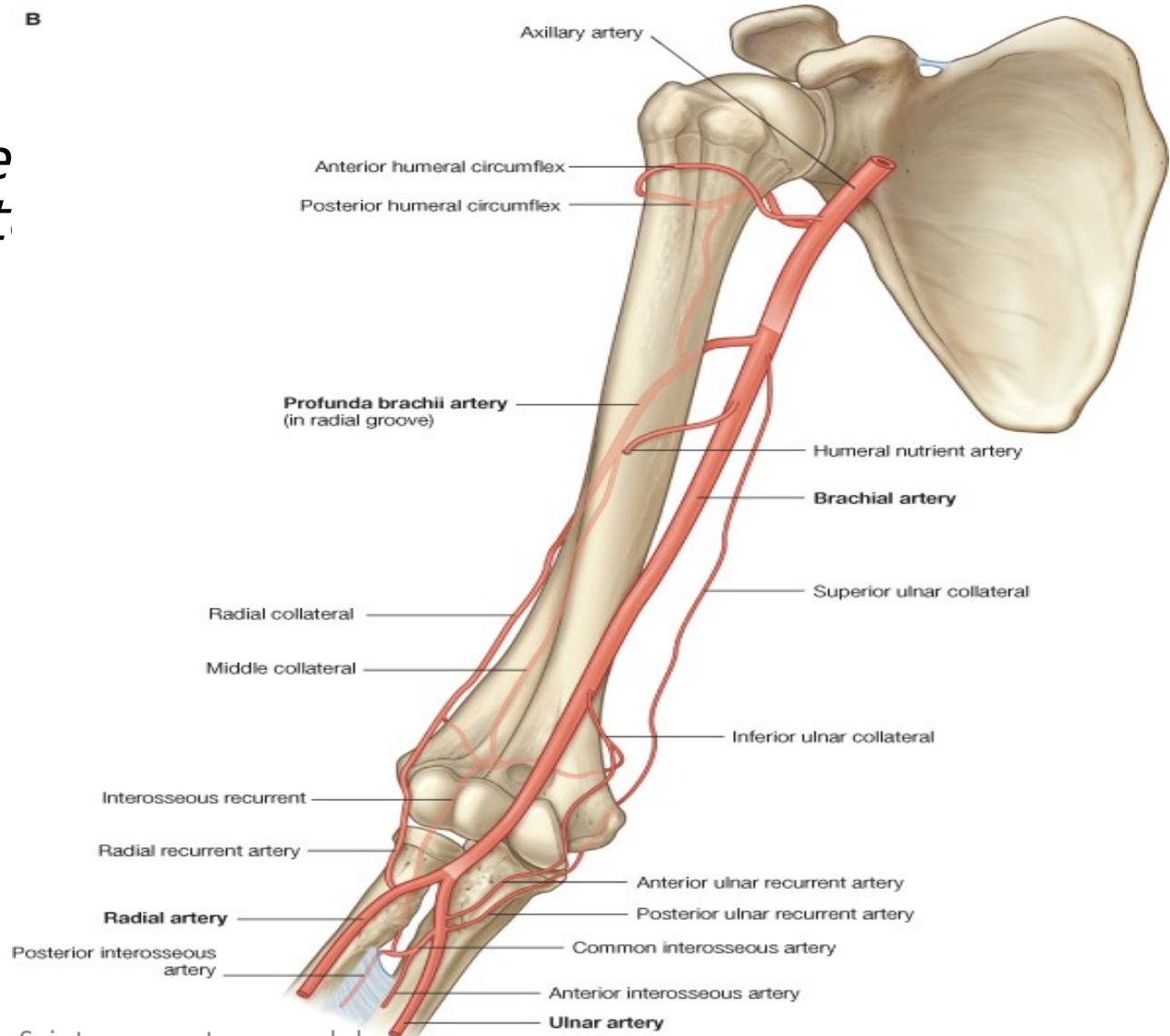
2- **Ascending branch :**

anastomose with descending of posterior circumflex

3-**Nutrient** to humerus

4- **radial collateral** to front of lateral epicondyle

5- **Middle collateral** to back of lateral epicondyle



# Lecture Quiz



Which of the following arteries is a branch of brachial artery:

- a) Suprascapular artery
- b) Sup ulnar collateral artery
- c) Common interosseous artery
- d) Radial recurrent

# Radial Artery

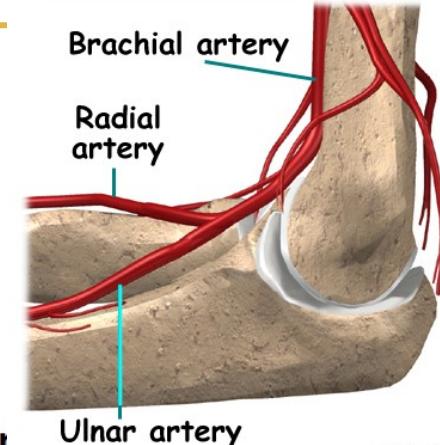
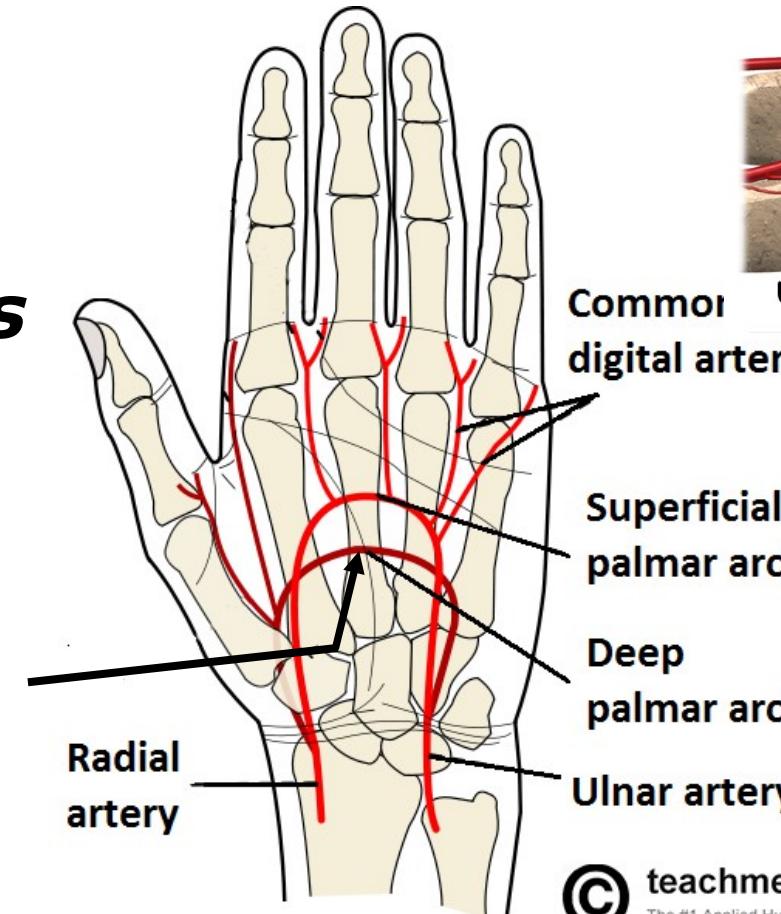


## □ Beginning:

- **One of 2 terminal branches of brachial artery**
- **At level of neck of the radius in cubital fossa**

## □ End:

- **Continues in palm as deep palmar arch**



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# Where to feel the radial pulse ?

- **LATERAL TO THE TENDON OF FLEXOR CARPI RADIALIS**



# Ulnar Artery



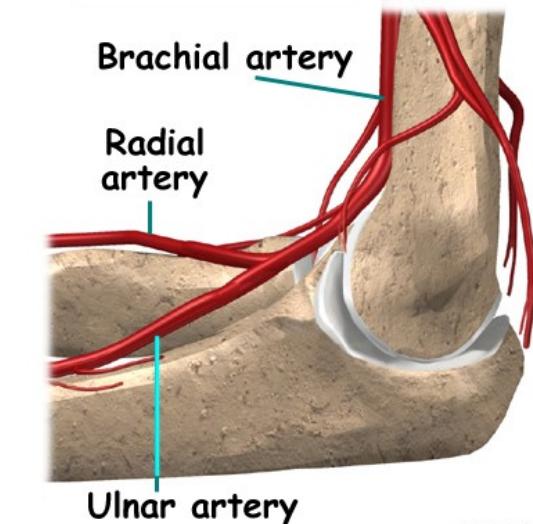
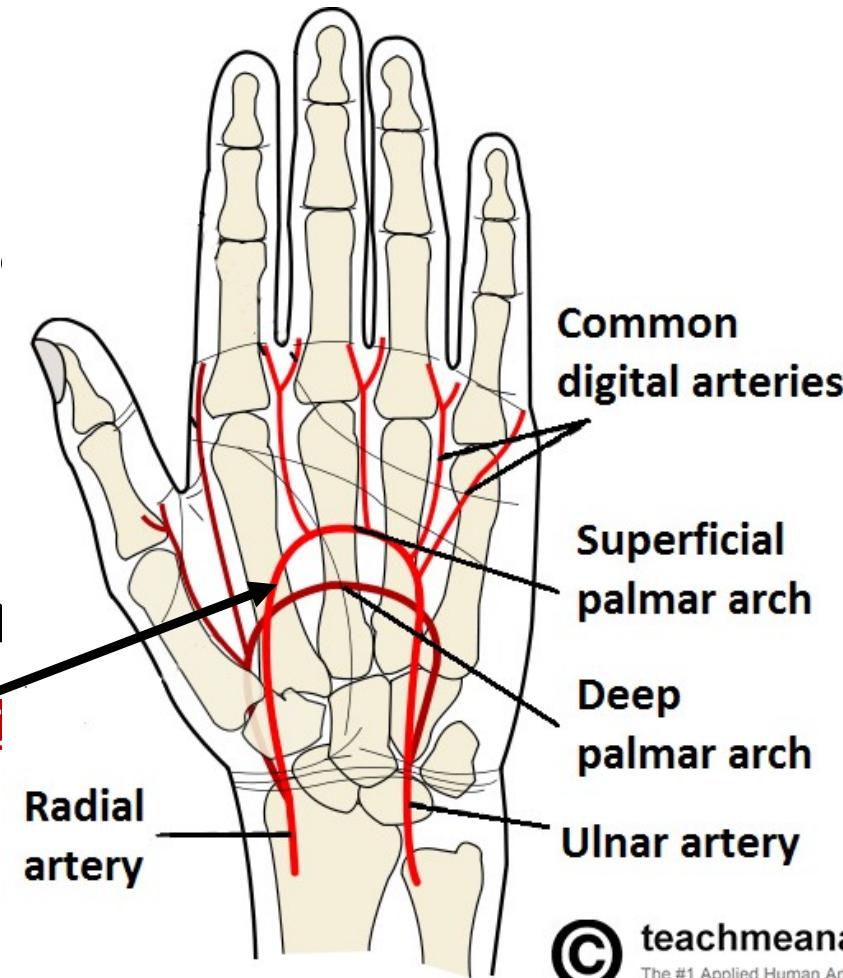
## □ Beginning:

Opposite neck of ra

- Larger terminal br of brachial artery

## □ End:

Continues in palm a  
*superficial palmar a*



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# Branches of Ulnar Artery

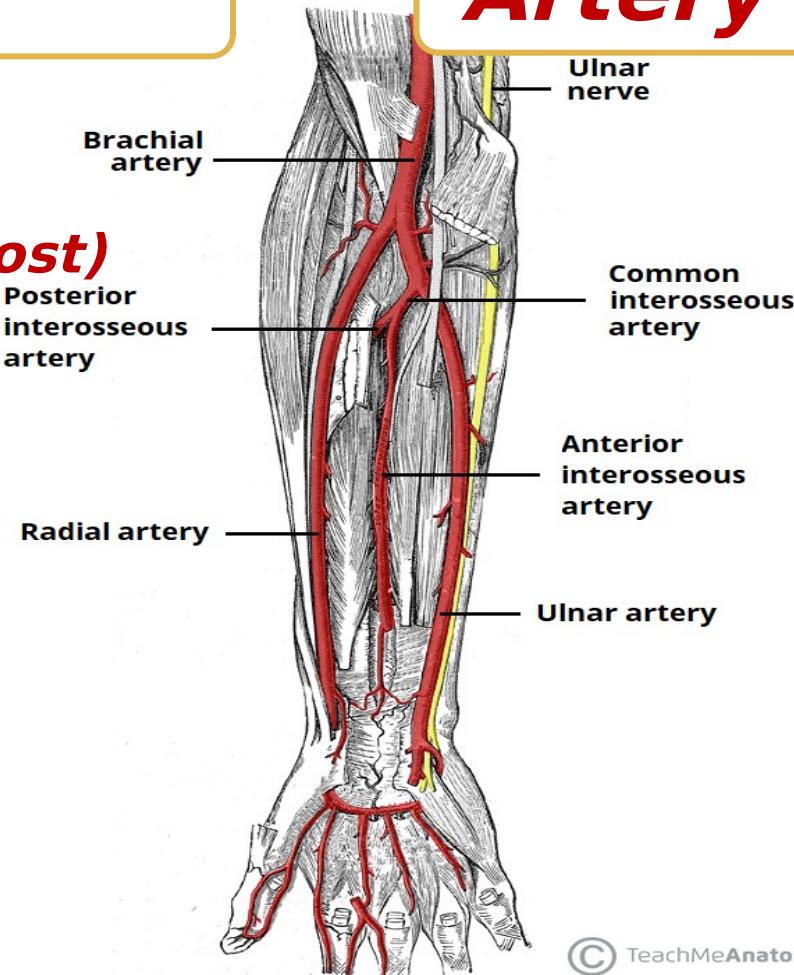


- **Muscular**
- **2 ulnar recurrent (ant & post)**
- **Common interosseous (gives ant & post inteross)**
- **Ant & Post carpal**
- **Deep palmar br**

# Branches of Radial Artery



- **Muscular**
- **Radial recurrent**
- **Ant & Post carpal**
- **Superficial palmar br**



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Ends by forming  
**Superficial palmar arch**

<https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwiQq5Gk4sDkAhVPxoUKHfnNAvsQjRx6BAgBEAQ&url=https%3A%2F%2Fteachmeanatomy.info%2Fupper-limb%2Fvessels%2Farteries%2F&psig=AOvVaw2GiUO-8r74W9SrF6-RYeFe&ust=1568016359240727>

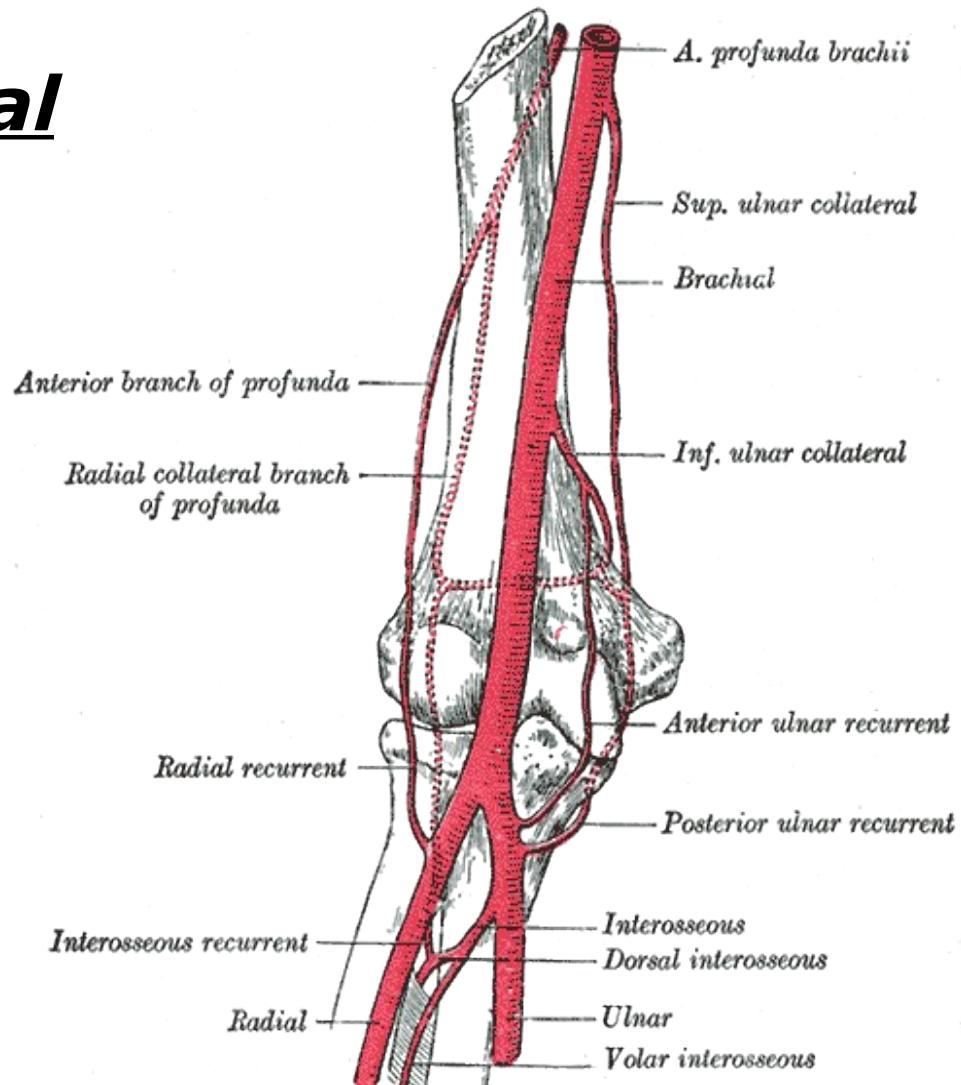
Ends by forming  
**Deep palmar arch**

# Anastomosis around elbow



## Around the lateral epicondyle

- 1. Ant descending**
- 2. Post descending**  
*(profunda brachii)*
- 3. Radial recurrent**  
*(radial)*
- 4. Interosseus recurrent**



## Around the medial epicondyle

- 1. Sup ulnar collateral**
- 2. Inf ulnar collateral**  
*(brachial)*
- 3. Ant ulnar recurrent**
- 4. Post ulnar recurrent**  
*(ulnar)*

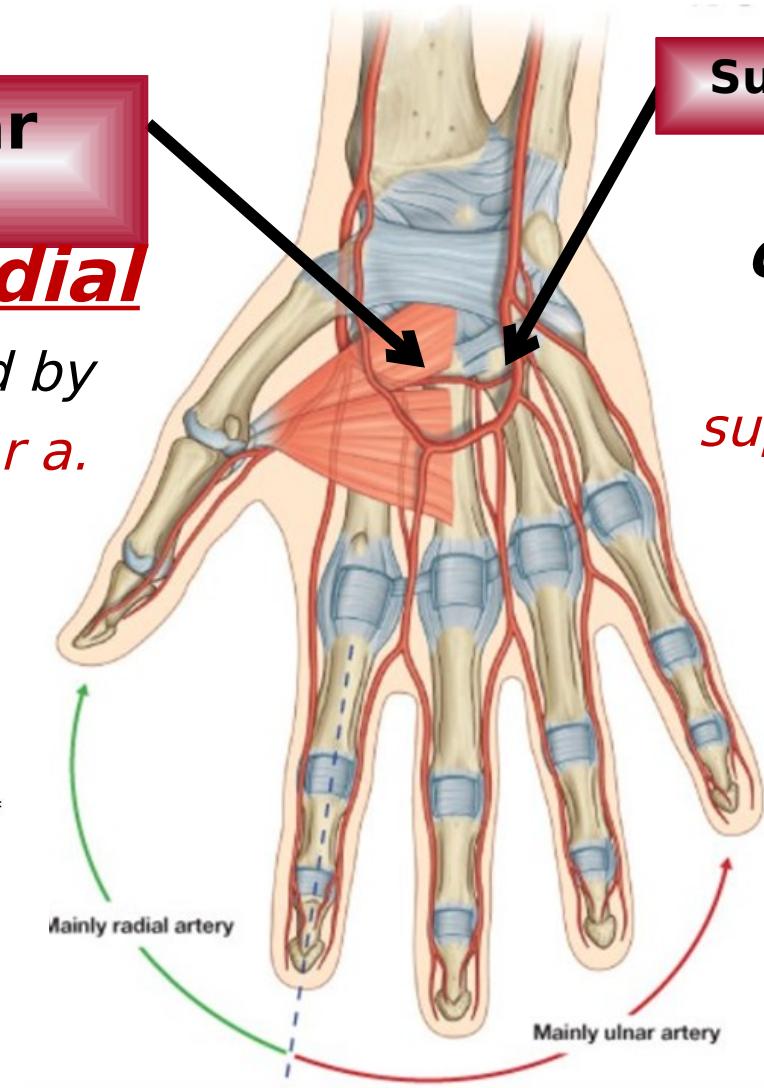
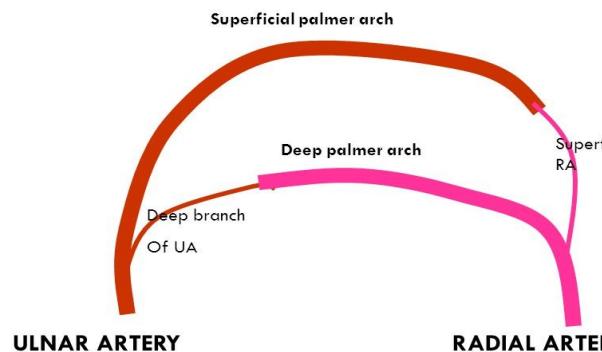
# Palmar Arches



**Deep palmar arch.**  
*Continuation of radial artery completed by deep branch of ulnar a.*

**Superficial palmar arch.**

*Continuation of ulnar artery completed by superficial palmar br. of radial a.*



# Anastomosis around wrist

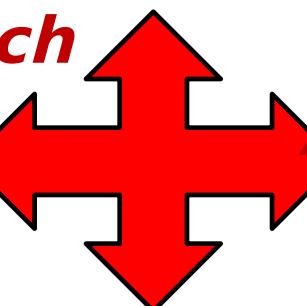


## Anterior Carpal arch



Recurrent br of Deep palmar arch

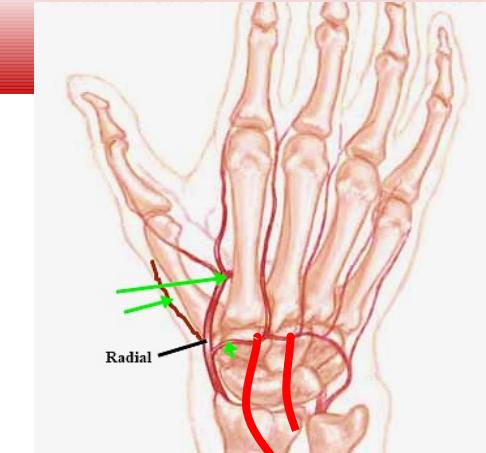
Ant carpal (Ulnar)



Ant carpal (Radial)

Descending br of Ant inteross

## Posterior Carpal



post carpal (Ulnar)

post carpal (Radial)

Termination of Ant & Post inteross



## Anterior Carpal Arch

\*Site: on the front of wrist.

\* Sharing arteries:

- 1- *Ant carpal branch of ulnar artery.*
- 2- *Ant carpal branch of radial artery.*
3. *Descending branch of anterior interosseous artery.*
4. *Recurrent branch from the deep palmar arch.*

## Posterior Carpal Arch

\*Site: on the back of wrist.

\*Sharing arteries:

- 1- *Post carpal branch of ulnar artery.*
- 2- *Post carpal branch of radial artery.*
- 3- *Termination of anterior interosseous artery.*
- 4- *Termination of posterior interosseous artery.*

## **SUGGESTED TEXTBOOKS**



1. Gray's Anatomy for Students-4th Edition

Atlas of human anatomy by Frank H. Netter, 6th Edition



Thank you!